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Claims

1. Clamping and/or braking device

a) with a housing, in which at least one plate-like element is held, which is supported with a first end, with respect to a stop area of the housing, and which transfers, with a second end, clamping and/or braking forces to an object or acts on a pressurizable element, which transfers clamping and/or braking forces to an object;

b) wherein the plate-like element has at least a bending area which is convex in the starting state, which is constructed pressure-resistant and nevertheless elastically deformable so that the bending area forms an elastic element between the stop area of the housing and a pressurizing end of the plate-like element;

c) wherein an essentially airtight pressure space, which can be acted on with the excess pressure of a pressure medium which can be supplied to the housing, is designed between the convex side of the at least one bending area of the at least one plate-like element and the housing; and

d) wherein the at least one plate-like element and its at least one bending area are so constructed that when the pressure space is acted on with excess pressure, as a result of a reduction of the curvature of the bending area, to attain prespecified clamping and/or braking forces, a movement of the second end of the at least one pressurizable element (17) takes place in the direction of the base element (7) or an increase in the clamping and/or braking forces, which can be transferred to the object by the second end of the at least one pressurizable element, is brought about.

2. Device according to Claim 1, characterized in that the pressurizable element is constructed as one piece with the housing and as a part of the housing, or as a part connected to the housing in a detachable manner, wherein the pressurizable element is constructed deformable in such a way that with a pressurization of the pressure space, a movement of at least one section of the pressurizable element takes place in the direction of the object or the transferable clamping and/or braking forces, which were produced by the at least one plate-like element, are transferred to the object.

3. Device according to one of Claims 1 or 2, characterized in that the first end of the at least one plate-like element is connected to the housing.

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1 4. Device according to one of the preceding claims, characterized in that the first end of
2 the at least one plate-like part is supported, without a firm connection, against the housing, and
3 with the presence of a pressurizable element, the second end of the at least one plate-like part is
4 preferably supported, without a firm connection, against the pressurizable element.

5 5. Device according to one of the preceding claims, characterized in that the at least one
6 plate-like element is constructed in the shape of a ring, preferably, in the shape of a circular ring.

7 6. Device according to Claim 5, characterized in that the ring-shaped, plate-like element
8 is constructed convex, in the starting state, over essentially the entire radial cross section,
9 wherein essentially the entire ring-shaped wall of the ring-shaped, plate-like element serves as a
10 bending area.

11 7. Device according to Claims 6 or 7, characterized in that the at least one ring-shaped,
12 plate-like element has radial slits, which are open inwardly, wherein preferably, the second end
13 of the ring-shaped, plate-like element is formed by the inside end of the ring-shaped, plate-like
14 element.

15 8. Device according to Claims 6 or 7, characterized in that the at least one ring-shaped,
16 plate-like element has radial slits, which are open outwardly, wherein preferably the second end
17 of the ring-shaped, plate-like element is formed by the outside end of the ring-shaped, plate-like
18 elements.

19 9. Device according to Claims 7 or 8, characterized in that one or more sealing elements,
20 preferably, in the form of a deformable layer on one part or on the whole surface of the plate-like
21 element, are provided, at least in the area of the slits, on the surfaces of the plate-like elements,
22 inside and/or outside, relative to the pressure space.

23 10. Device according to one of the preceding claims, characterized in that the bending of
24 the at least one bending area of the at least one plate-like element is limited in such a way that
25 after a discontinuation of the pressurization of the pressure space with excess pressure, as the
26 result of the elastic effect of at least one bending area, it is moved back to the starting state.

27 11. Device according to one of the preceding claims, characterized in that several
28 plate-like elements are provided, whose second ends have a predetermined interval, in order to
29 transfer clamping and/or braking forces to the object over a prespecified expanded area, wherein
30 for each plate-like element, a separate pressure space or for several or all plate-like elements, a
31 common pressure space is constructed.

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1 12. Device according to one of the preceding claims, characterized in that at least one
2 pair of plate-like elements is provided, whose first and second ends are directly adjacent or are at
3 a close distance to one another and their convex bending areas run convex outwardly, relative to
4 the other plate-like element of the pair of plate-like elements, wherein a common pressure space
5 is provided for the pressurization of the bending areas of the two plate-like elements of a pair.

6 13. Device according to Claim 12, characterized in that the plate-like elements are
7 constructed in such a manner that they lie close to one another, in an ending state, with
8 pressurization by an excess pressure greater or equal to a prespecified maximum pressure, with
9 at least one partial area of the sides facing one another, wherein the ending state is defined by a
10 suitable formation of the bending areas in such a manner that an automatic return from the
11 ending state to the pressure-less starting state takes place.

12 14. Device according to one of Claims 11-13, characterized in that a pressurizable
13 element is provided, which, in the entire area in which the several plate-like elements are active,
14 is constructed rigidly.

15 15. Device according to one of the preceding claims, characterized in that the housing
16 and the pressurizable element are constructed as essentially H-shaped bodies, wherein the at
17 least one plate-like element and the pressure space are provided between the essentially parallel,
18 upper legs of the H-shaped body, wherein clamping and/or braking areas for the transfer of the
19 clamping and/or braking forces to the object are provided on the essentially parallel, lower legs
20 of the H-shaped body and wherein the H-shaped body is elastically deformable in the area of the
21 middle crosslink and/or the connecting areas of the middle crosslink with the legs of the H.

22 16. Device according to one of Claims 1-14, characterized in that the housing and
23 pressurization element are formed as essentially U-shaped bodies, wherein the at least one plate-
24 like element and the pressure space are provided between the essentially parallel legs of the U-
25 shaped body, wherein clamping or braking areas for transferring clamping and/or braking forces
26 to the object are provided between the essentially parallel legs of the H-shaped body, and
27 wherein the U-shaped body is elastically deformable in the area of the base of the U and/or in
28 the area of the legs of the U.
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